

THE MARSUPIAL GENUS THALACOMYS.

A REVIEW OF THE RABBIT-BANDICOOTS; WITH THE DESCRIPTION OF A NEW SPECIES.

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Text figs. 352-360.

THE rabbit bandicoots, rabbit rats, or native rabbits, constitute a very well-defined and extremely interesting little group of the syndactylous polyprotodonts.

At the present time it cannot be said that any species is at all common; but within the last twenty years certain of them have been quite abundant in suitable country, even in the immediate proximity of such towns as Adelaide. Both to the north and to the south of the city itself rabbit bandicoots lived in abundance but little more than twenty years ago, but to-day the animal is completely exterminated in practically all its old haunts. Pelts still come in small numbers to the skin salerooms, but formerly the beautifully silky skins were regular items in the markets of Adelaide.

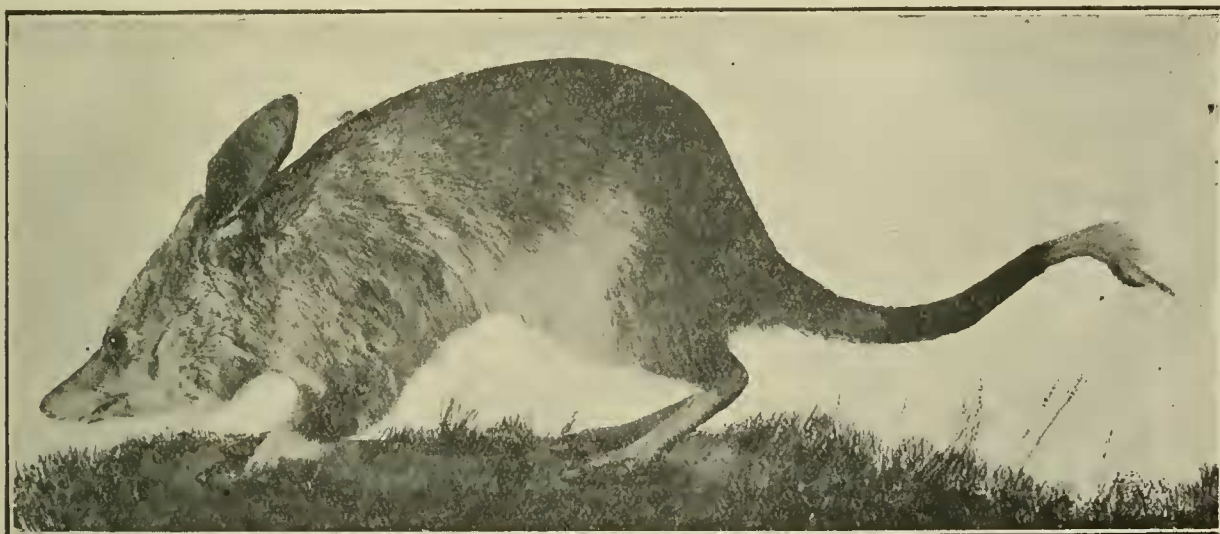


Fig. 352. *Thalacomys lagotis*. Male specimen from Nalpa, South Australia, in the South Australian Museum. About one-sixth natural size.

In South Australia the animals were usually known as "pinkies," or in some districts as "pintoes." It is said that the name "pinkie" was given to the members of the genus *Thalacomys* in allusion to the naked flesh-coloured snout; but the same name is also used to designate the Short-nosed Bandicoot (*Isodon obesulus*) in certain parts of South Australia. In the Centre, rabbit bandicoots are usually known as "thulkas" or "talkies," which is the white man's rendering

of the name in general use among the Kukata blacks. Further into Western Australia the name changes to "dalgheites," "dalgites," or "dulgites." All these names are, however, somewhat local in their usage. The most general term, by which the animals seem to have been known to the colonists in all the States, is "bilby."

Unfortunately the rabbit bandicoots are not only rare animals to-day, but, as is the case with so many forms that were common enough only twenty years ago, the amount of preserved material existing in Australian Museums is sadly inadequate. To provide descriptions based on the examination of a thoroughly satisfactory series of skins and skulls would be a very difficult task for the worker in Australia. In the modern study of Mammalogy it is becoming increasingly important that the characters of a species should be determined from the examination of a large number of individuals, the provenience of which individuals should be precisely known. It cannot be said that the Australian Mammals, even the commonest species, are represented in sufficiently long series in Australian institutions to make work, in keeping with modern requirements, at all easy to carry out in Australia.

In some respects, therefore, this paper must be regarded as being merely tentative, for I am fully aware that the material I have been able to examine has been too limited in amount to make my conclusions as absolute as is desirable in studies of this kind. It is possible that the accumulation of further specimens may invalidate some of the deductions here put forward; for the variability of animals whose habitat is in the more central Australian regions is well recognized. The variability in adult size of animals living in the Centre is a very remarkable phenomenon, and some of the species of the genus *Thalacomys* have been established largely upon the size of the animal. It has therefore been my aim to sort out certain cranial features which serve to distinguish the known species, and so avoid so far as possible attaching importance to features which are well known to be unstable in the environment in which these animals live. In this way it is hoped that the necessarily small amount of material examined is compensated for, and meanwhile this paper may serve its purpose by providing a basis for future workers by gathering together the descriptions of all the known species within the compass of a single short article, and by providing figures of the main features of their cranial architecture.

In general, the bionomics of all the species may be taken as being similar, and in the following notes the individual species will not be differentiated unless it is known that their habits differ in some respects. Observations on wild specimens mostly relate to *T. sagitta*; whilst those observed in captivity have been *T. lagotis*, and the new species *T. nigripes*.

By the earlier colonists the bilby was not only regarded as an animal against which the methods of the exterminator need not be employed, it was even accorded a certain amount of protection and was, at times, kept as a pet about the house. The tolerance with which it was regarded by people whose hands may justly be said to have been against all animals was due to the fact that it

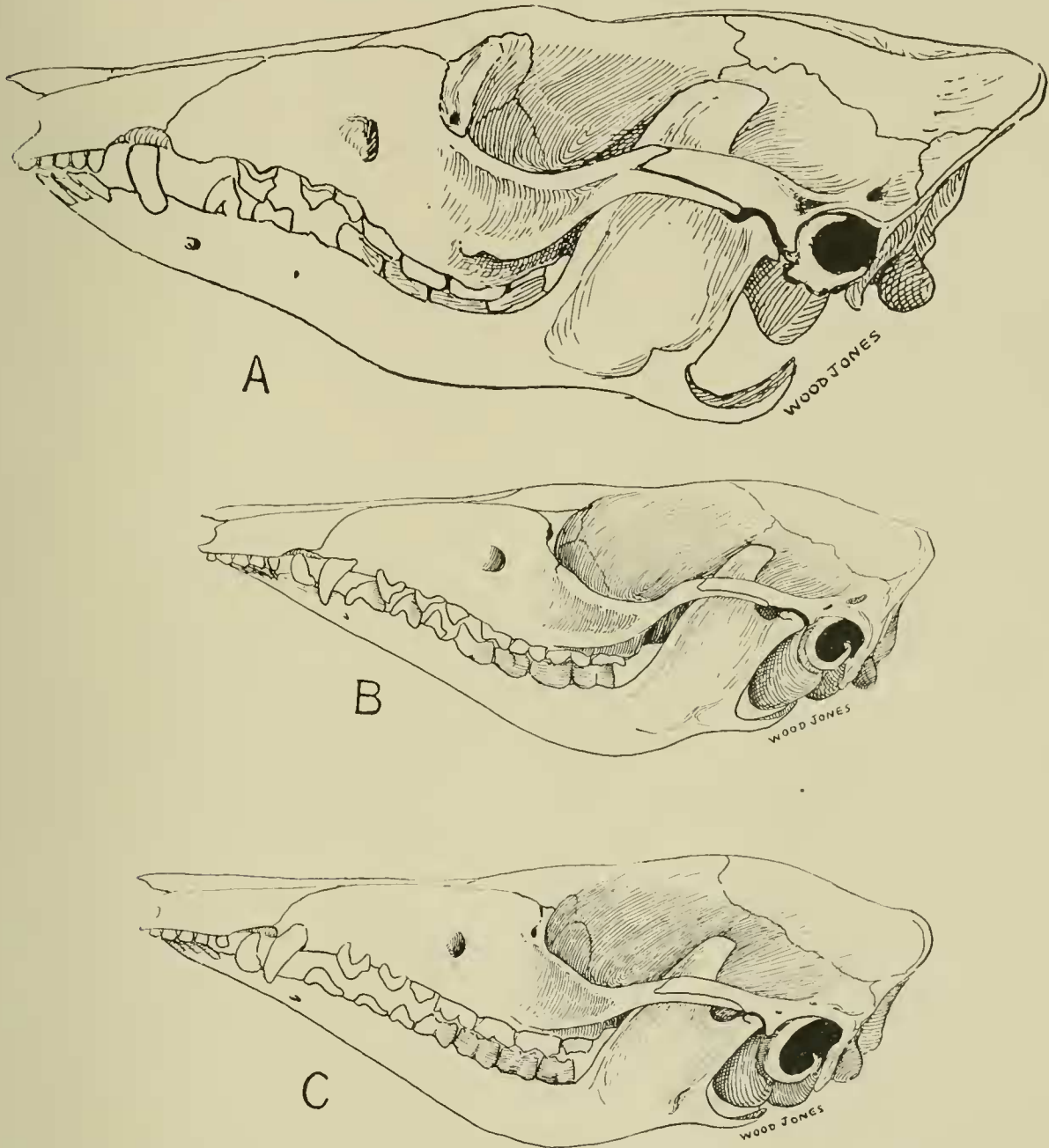


Fig. 353. Lateral views of skulls. (A) *T. lagotis*, from Nalpa. (B) *T. sagitta*, S.A. Mus., No. M1622. (C) *T. nigripes*, from Ooldea. All natural size.

was recognized early that, in the destruction of mice and insects, the rabbit bandicoots were extremely useful creatures. Unfortunately, this regard for the animals seems to have been forgotten by a later generation, and in more recent days but little mercy has been shown to them by any section of the community.

The diet of the bilby is commonly said to be "bulbous roots" (Kreffft), "grass, fruits, and insects" (Lydekker), but I doubt very much if any of the species is at all given to eating roots, grass, or fruits. It is true that in districts where they live it is common to see little holes scratched around the roots of vegetation, but it is very doubtful if these are made in order to obtain roots. It seems much more likely that insects are the object of the search. In captivity I have been unable to persuade them to eat roots or fruit; but bread or cake, meat raw or cooked, insects, snails, birds, and mice are all readily eaten. Those that I have observed are far more carnivorous than any of the bandicoots (*Isoodon* or *Perameles*) that I have had living in captivity.

The members of the genus *Thalacomys* differ from the rest of the *Peramelidae* in their truly fossorial mode of life. *Isoodon* and *Perameles* will both scratch out shallow runways, but none of the species with which I am acquainted ever excavates real burrows in which to live. *Thalacomys*, on the other hand, passes most of its time in the depths of a burrow of its own making. These burrows are still to be seen in some numbers in certain districts to the north of the Transcontinental Railway from Port Augusta to Perth. The typical burrow, as it is excavated in this district, is easily identified, not only by the track of the animal and the characteristic mark made by its tail, but by the actual construction of the burrow itself. Unlike many burrowing animals, it does not make an exit and an entrance hole. The burrow has a single opening, and from the mouth it descends with a fairly steep but ever-opening spiral to a depth of five feet or more. The spiral construction seems to be universal, and the work involved in digging out a burrow is very considerable, for the animal by no means always selects those spots where the soil is loose, as Waterhouse affirms (p. 361). According to Sir Baldwin Spencer, *T. minor* differs from the other members of the genus in that "during the winter months it lies within a foot or so of the entrance of its burrow and only uses the inner chamber during the summer" (p. 9). *T. sagitta*, *T. nigripes*, and *T. lagotis* seem to occupy the furthest recess of the burrow at all times, and have to be dug out, whereas the blacks capture *T. minor* by stamping in the burrow behind it. Not only does *T. sagitta* spend the whole day at the bottom of its burrow, but in the region to the south and west of Lake Eyre, where alone I have field experience of it, it spends the whole of the cold weather, for it never comes abroad in the evenings of the short but sharp winter.

It is a feature not confined to the burrows of *Thalacomys*, for the homes of many creatures which live underground in the arid Centre show the same characteristic—that, though maybe a barrow load of earth must have been

removed in the excavation, the mound of débris at the entrance consists of no more than a bucketful.

By Krefft it is said not to be so ferocious as its large canines would lead one to suspect. To a certain extent that is true, and the animal can only be described as an extremely inoffensive creature. Nevertheless, all those with which I have had to deal have needed the exercise of considerable caution in their handling. They bite readily and savagely when interfered with, and though the bite may not be very severe, it is aggravated by the fact that the animal will not readily let go, and inflicts multiple bites from a single hold. Bilbies are strictly nocturnal, and come abroad at a later hour than any other marsupials that I have observed. Those that I have had living in captivity (in a large open-air run) have often been noticed to appear at dusk, but, after a hurried look round, to retreat to bed again, and not reappear for an hour or so. They seem, however, to have no objection to moonlight. During the daytime they sleep in a remarkable posture. No bilby that I have observed—even including one that had lost a hind leg in a rabbit trap—ever really lay down to sleep. The long ears are laid back, and then folded forwards against the side of the head, so that the tips come forward over the eyes, and alongside the snout. The animal then squats on its hind legs, and tucks its long snout between its fore legs, so making itself into a round silky ball, the tail being protruded straight behind it or flexed forwards right underneath the body. When the animal wakes in the evening it often starts its perambulation with one ear laid back and the other still doubled forwards in the sleeping position. It is curious that, though the ears are kinked flat upon themselves for the greater part of the time, there is no indication in them of a crease or folding line where the flexure takes place.

In any gait the hind limbs move together. In slow progression the fore limbs move alternately; in more rapid movements they move in unison, but alternately with the synchronously acting hind limbs. Waterhouse noted of one which lived in the gardens of the Zoological Society of London that, "when walking, the hind legs only were used, and these were very widely separated. The tail assisted slightly in supporting the body, which was but little raised in front" (p. 361). I cannot help thinking that this is an erroneous observation. It is quite true that the hind legs are widely separated, and that the body is but little raised in front; but I do not think that the animal ever progresses on its hind legs alone in true saltatory fashion.

It can make a good pace, though its progress always appears to be shuffling and somewhat ungainly. Its greatest safeguard is its aptitude for digging itself in, and the speed with which it can make for the shelter of its burrow.

In almost all published figures, and in most mounted specimens, the animal

is represented as standing far too high on its legs: such figures as Lydekker's Plate xx, and the mounted specimen photographed by Lucas and Le Souëf (fig. p. 137), give very incorrect postures for the animal. Compare figs. 352 and 358.

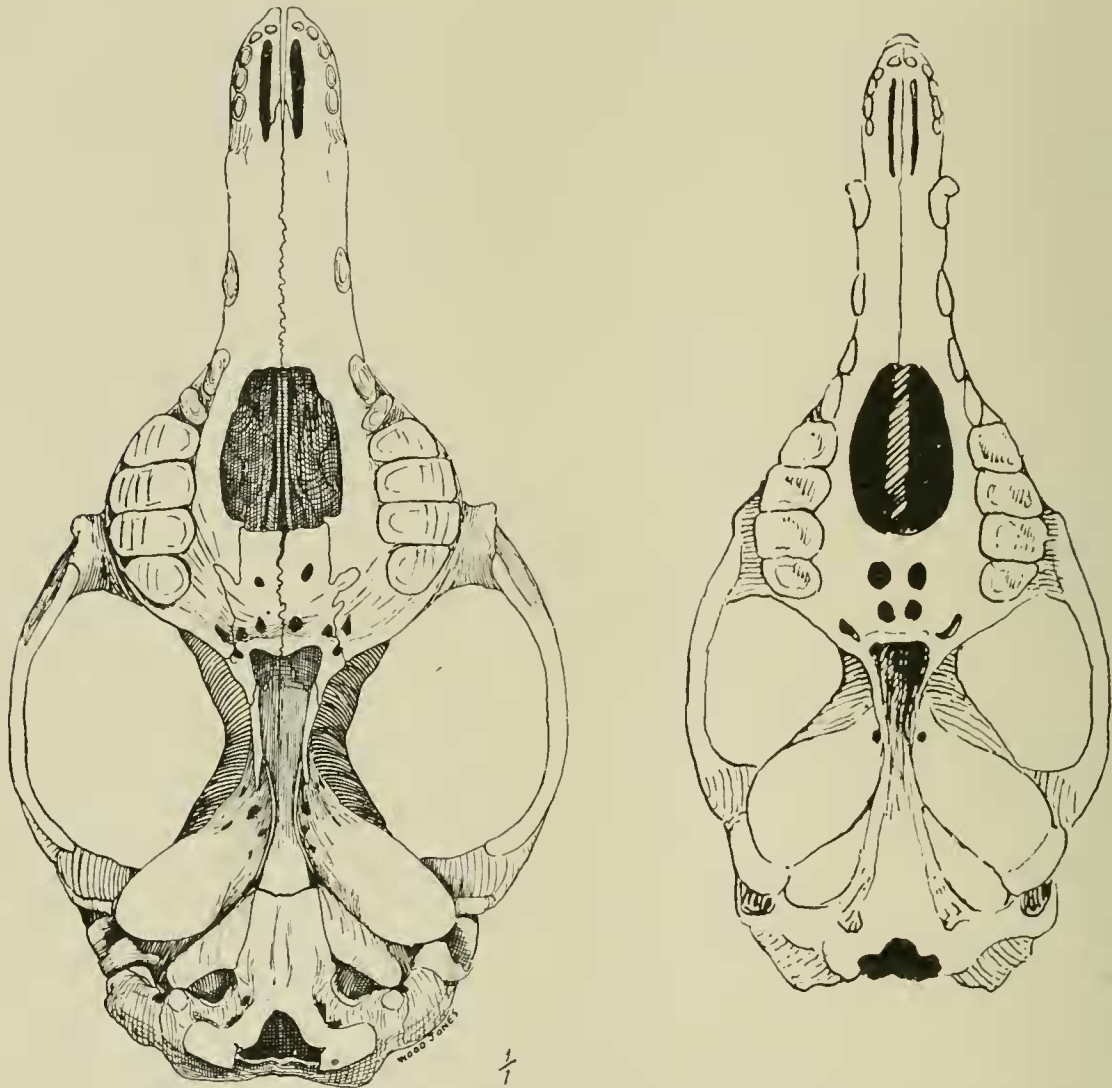


Fig. 354. Basal views of skulls of *T. lagotis*. Figure on the left from a male specimen from Nalpa, South Australia. Figure on the right from Thomas, Cat. Brit. Mus., 1888, pl. xxii, fig. 1. Natural size.

The toilet of the long silky hair is elaborate, and is performed, as usual, by the syndactylous pedal digits, the manus being unemployèd. An animal which had suffered the loss of a hind leg made vigorous attempts to scratch itself with the short stump, but never attempted to replace the office of the absent member by the employment of its hands. The syndactylous digits, after being employed for combing, are invariably cleansed by the teeth and tongue. The change of pelage takes place twice a year, in September and in February, and is a prolonged affair. The new coat first appears upon the head, and slowly spreads over the shoulders and along the back. There is a very sharp line of division between the

old coat and the new, for the new hairs remain for a long while considerably shorter than the old, and they are distinctly more warmly coloured, the old coat appearing long and silvery, the new coat short and more fawn coloured.

The main guiding sense for food is olfactory, and, during daylight at least, the power of vision seems to be by no means acute. A grasshopper, even though it be actively moving, is detected in the daytime by scent before it is detected by sight. When active in the dark the auditory sense is evidently very keen, and although the animal will take no notice of a person who remains quite still, it will detect a footfall with remarkable discrimination.

The animal appears to produce no vocal sound save an inspiratory hiss when disturbed.

The reason for the rapid decrease in numbers of the bilbies is not obvious. Certainly they have been ruthlessly slaughtered in all districts within reach of the more settled areas. Their pelts have been marketed in large numbers for profit, and they have been more wantonly killed for "sport." Many have been maimed or killed in rabbit traps, and possibly many have fallen victims to poison baits. As with all the more defenceless marsupials, the introduced fox has probably played its sinister part. But in the Centre, where the fox is still absent or rare, it would seem that the extraordinary abundance of rabbits, and the consequent shortage of breeding burrows, has been a very real factor. It may be useless to plead for the preservation of the remnant of the bilbies, but at least it is worth urging that the sale of their pelts should be totally prohibited.

THALACOMYS Blyth.

Macrotis Reid, Proc. Zool. Soc., 1836, p. 131.

Thalacomys Blyth, Cuv. Anim. Kingd., 1840, p. 104; Thomas, Ann. Mag. Nat. Hist. (7), v, 1900, p. 223; Elliot, Publ. Field. Col. Mus. Zool., vii, p. 10, 1907.

Peragalia (*Peragalea*) Gray, 1843. By Thomas, Lydekker and Cabrera the reference is given as Grey's Australia, App. II, p. 401. Assuming this reference applies to Grey's "Travels in North-West and Western Australia," 1841, it is incorrect, as there the animal is listed as *Perameles lagotis*. By Cabrera the reference is also given for *Macrotis*, but no mention of this synonym occurs in this work. The reference should be Gray, Hist. Mamm. Brit. Mus., 1843, p. 96.

Type. *Macrotis lagotis* Reid.

The distinguishing characters of the genus may be summed up as follows: General form light and delicate. Pelage remarkably long and silky. Muzzle long and pointed, usually naked for a space upon its dorsal surface posterior to

the rhinarium. Rhinarium narrow; naked; grooved only slightly in its infra-narial portion. Ears extremely long, naked, and membranous towards their extremities; funnel-shaped with a tubular base, processus antehelicis duplicated. Pouch opening downwards and slightly backwards. Nipples 8 (9 in the original description of Reid). Manus with 5 digits, the 1st and 5th short and clawless; the 2nd, 3rd, and 4th well developed and armed with strong curved claws. Hind limbs much longer than fore limbs. On the pes, the hallux is absent; the 2nd and 3rd digits syndactylous; the 4th and 5th well developed, the 4th being by far the largest. See fig. 360.

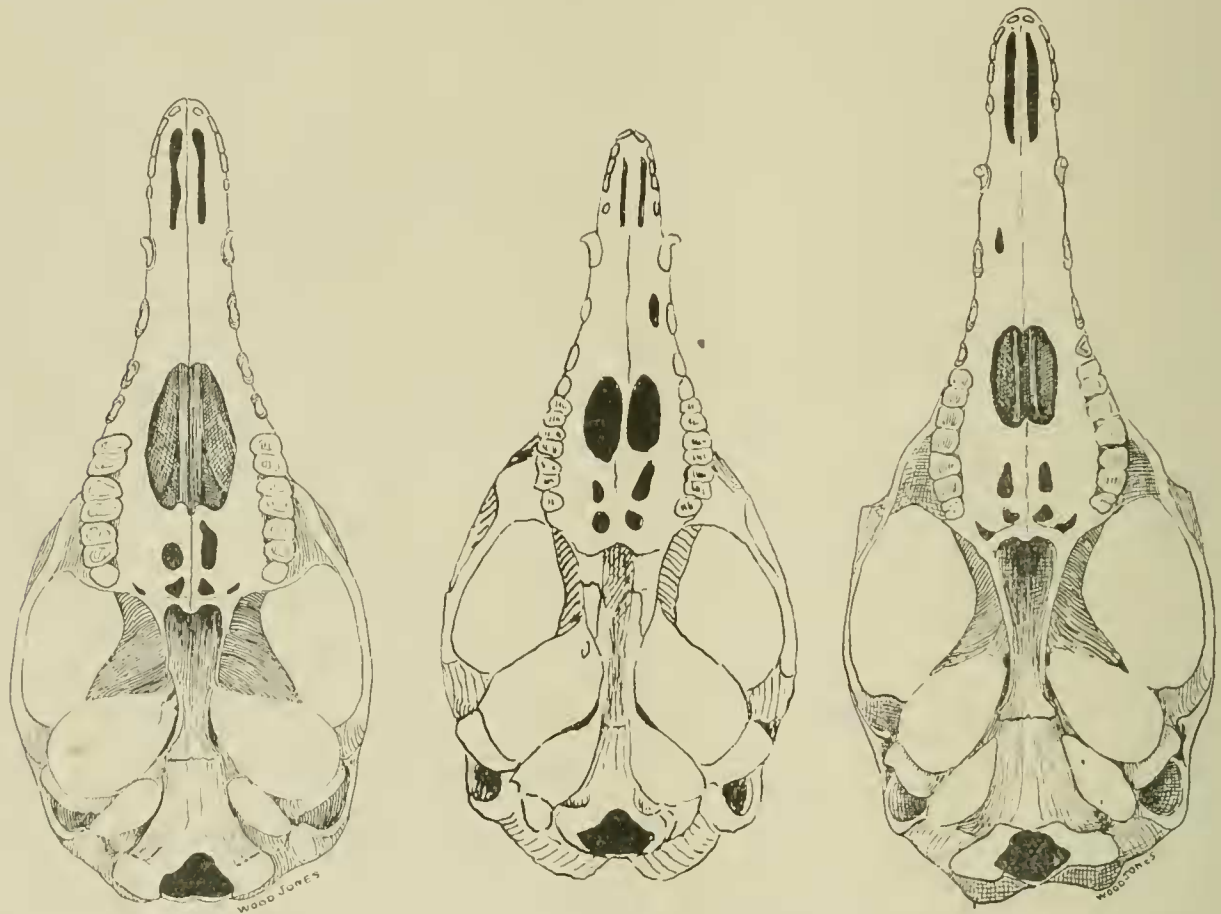


Fig. 355. Basal view of skulls. Figure on the left *T. sagitta*. Central figure *T. minor* (from Spencer). Figure on the right *T. nigripes*.

Digital formula of manus: $3 > 2 > 4 > 5 > 1$; palm granular, three small interdigital tubercles at the bases of digits 2, 3, and 4.

Digital formula of pes: $4 > 5 > 2,3$; sole hairy, with exception of heel, pad, and terminal portions of digits. One large pad at base of digit 4. Tail long, crested in its terminal portion.

Skull. Facial portion of skull abruptly contracted to snout region opposite the 2nd premolar. Palate large, the vacuities usually conjoined. Bullae very

large and pyriform; mastoid inflation well developed. Dentition: $I \frac{5}{3}$; $C \frac{1}{1}$; $P.M. \frac{3}{3}$; $M \frac{4}{4}$. Upper incisors broad and flat, I^5 being close to I^4 . Canines large and powerful. The last premolar distinctly smaller than the tooth immediately in front of it. Molars square or rounded in section.

The genus appears to be obviously a specialized offshoot of the Australian bandicoots, which themselves find their more primitive representatives among the Papuan members of the genus *Peroryctes*.

THALACOMYS LAGOTIS Reid.

Perameles (Macrotis) lagotis Reid, P.Z.S., 1836, p. 129.

Peragale lagotis Thomas, Cat. Mars. & Mon. Brit. Mus., 1888, p. 223, pl. xxii, fig. 1; Flower & Lydek., Mamm., 1891, p. 143; Ogilby, Cat. Aust. Mamm., 1892, p. 24; Lydek., Mars. & Mon., 1894, p. 132; Spencer, Horn. Exp., ii, 1896, p. 17; Lucas & Le Souëf, Anim. of Aust., 1909, p. 137.

Thalacomys lagotis Elliot, Pub. Field Col. Mus., Zool., vii, 1907, p. 10; Cabrera, Gen. Mamm. Mon. & Mars., 1919, p. 82.

The external characters as originally recorded by Reid (Proc. Zool. Soc., 1836, p. 129) are as follows:

“*Perameles lagotis*. Per. griseus, capite, nuca, et dorso, castaneo lavatis; buccis, lateribus colli, scapulis, lateribus, femoribus extus, caudaque ad basin, palide castaneis; mento, gula, pectore, abdomine, extremitatibus intus anticeque, antibrachiis postice, pedibus que supra albidis, antibrachiis externe pallide griseis, femoribus extis posticeque saturate plumbeis; cauda, pilis longis albescens ad partem basalem, induta, dein pilis nigris tecta, parte apicali alba, pilis longis supra ornata. Vellere longo molli. Cauda pilis rudis vestita; pilis ad pedes brevissimus. Labio superiore, buccisque, mystacibus longis sparsis. Auriculis longis, ovatis, intus nudis, extus pilis brevissimis brunneis, ad marginem, albescens indutis, pilis ad bases eos plumbeis, apicalis albis aut castaneis, illis in abdomine omnino albis. Marsupio ventrali magno, mammis novem, in faciem posticam; quarum una centralis est, reliquis circumdata, intervalis aequalibus, gyrumque facientibus, transversum unciam cum quadrante redentem.”

The more extended descriptions that are given by Waterhouse and by Thomas are in practical agreement on most points, and the general specific characters of *T. lagotis* may be summed up as follows:

External Characters. Size large, head and body length being 400 mm. and upwards. General body colour fawn-grey, with ventral surface and inner aspect of limbs white. A faint indication of paler bands across the thigh is present in some specimens. Manus white. Pes white above; dark below in

the posterior half, or rather more. Tail with the black portion as long as, or longer than, the white portion.

Cranial Characters. Skull large; basal length 90 mm. or more. All muscular ridges and crests extremely well marked. The posterior (molar) portion of the palate distinctly rounded in outline; the molars arranged in crescentic series. The posterior end of the palate extending well behind the last molar teeth. The posterior palatine vacuities reach from about the central point of the middle premolar to about the central point of the third molar. The nasal bones extend backwards so that their posterior ends almost reach a line joining the lachrymal foramina. See figs. 353, 354, 356, and 357.

Dental Characters. Molars large. Intervals between the lingual margins of adjacent teeth very small. From the front of the canine to the back of M^4 is a distance of 42 mm. or more.

Distribution. The type specimen was described as coming from "Van Diemen's Land," but this was in error, the animal having been procured in the Swan River district of Western Australia.

The species still exists in Western Australia.

In South Australia, though it was formerly abundant in the southern portion of the State, it is now either extinct or on the verge of extinction.

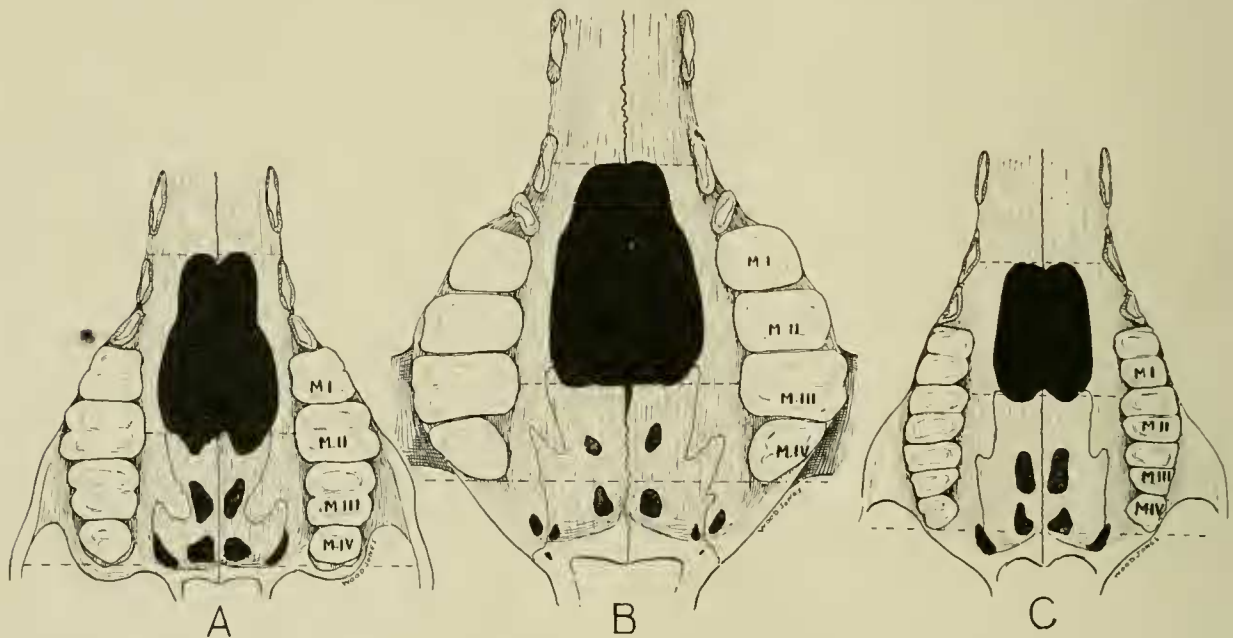


Fig. 356. The posterior portion of the palate in (A) *T. sagitta*, (B) *T. lagotis*, (C) *T. nigripes*.

Recently, owing to the kindness of Mr. Heber Longman, I have had the opportunity of examining a typical living specimen from Queensland.

It must not be imagined that *T. lagotis* is the representative of the genus in Western Australia, and that *T. sagitta* is the representative in South Australia, an impression which is rather easily gained from Thomas's 1905 paper; for

T. lagotis was the prevailing type in the southern portion of South Australia only a comparatively short time ago. Thirty years ago it was usual for rabbit trappers in the Southern districts to take more bilbies of this type than rabbits in their traps. Of this race, one very fine mounted specimen,* some half-dozen skulls, and a fully articulated skeleton are preserved in the South Australian Museum. The Museum material is mostly from Nalpa, and this for the reason that the country about Lake Alexandrina was the family property of the late Sir Edward Stirling (at one time Director of the Museum). From Nalpa the animal has long since disappeared. See fig. 352.

Dimensions in mm.

	Brit. Mus. ad. ♂ stuffed, W.A.	Reid. Type.	Waterhouse.	ad. ♂ stuffed. Nalpa, S.A.
Head and body	440	462	458	550
Tail	220	254	244	260
Hind foot	98	113	101	114
Fore foot	—	44	—	—
Ear	90	97	96	77
Rhinarium to eye	61	71	—	72

Dimensions of Skull.

	Nalpa.	Nalpa.	Nalpa.	Gilles Plains.	Western Aust.	Brit. Mus. W.A.	Brit. Mus. W.A.
Greatest length	114	114	110	105	104	—	—
Basal length	103	104	105	96	94	94	92
Zygomatic breadth	55	56	55	55	44	50	42
Nasals, length	50	48	47	49	47	47	46
Palate, length	64.5	66	66	64	62	61.5	61
C—M ⁴	45	44	43	43	45	44	42.5

THALACOMYS SACITTA Oldfield Thomas, 1905.

Thalacomys sagitta Thos., Ann. Mag. Nat. Hist. (7), xvi, 1905, p. 426; Cabrera, Gen. Mamm., Mon. & Mars., 1919, p. 82.

In his paper of 1905 Mr. Oldfield Thomas decided, on the receipt of a specimen from Killalpaninna (wrongly spelled as Killalpanima), that the South Australian animal was so considerably smaller than the West Australian one that the two ought certainly to be separated. It may be pointed out that the district around the old mission station of Killalpaninna, which lies in the arid Lake Eyre basin of Cooper's Creek, can hardly be taken as a typical South

* A large specimen, but indifferently mounted, many years ago.—[Ed.]

Australian habitat. It is, therefore, not at all unlikely that the animal which was forwarded by Mr. Hillier does not represent the South Australian animal when we consider South Australia as a whole. The type *T. sagitta* should be regarded as a northern form, one which lives in the region of the Lake Eyre basin, probably from somewhere near Miller's Creek, in the S. and W. to Cooper's Creek in the N. and E., and Charlotte Waters in the N. *T. lagotis* is the form which had for its habitat the more watered and more fertile districts of the southern portion of South Australia. *T. sagitta* is the representative of the genus in the more arid central regions. Of the external characters, Oldfield Thomas says: "Externally, apart from the corresponding difference in size, there is little to distinguish the two forms. On the whole *T. sagitta* is a little paler in tone, the black band on the tail is slightly shorter, being shorter instead of longer than the white end, and the feet are paler below, the black only extending about a third of their length underneath the heel."

The general specific characters of *T. sagitta* may be summed up as follows:

External Characters. Size medium, head and body length being about 300 mm. and upwards. General body colour as in *T. lagotis*, but a little paler. Mammae white. Pes white above; dark below in the posterior third only. Tail with the black portion shorter than the white portion.

Cranial Characters. Skull fairly large; basal length 70 mm. or more. Muscular crests not very well developed. The posterior (molar) portion of the palate only very slightly rounded in outline; the molars arranged in almost straight rows, which diverge posteriorly. The posterior end of the palate terminates at the last molar tooth. The posterior palatine vacinities reach from about the central point of the middle premolar to about the central point of the second molar. The nasal bones extend backwards so that their posterior ends come to within about 4 mm. of the line joining the lachrymal foramina. See figs. 353, 355, 356, and 357.

Dental Characters. Molars relatively large. But little space between the lingual margins of adjacent teeth. From the front of the canine to the back of M^1 is a distance of 36 mm., or slightly more.

Of *T. sagitta*, Oldfield Thomas reports that there are five skulls in the British Museum; a good example (No. M. 1622) is in the South Australian Museum, and I have some others, all obtained from the dessicated remains of animals long dead and often fragmentary, at Miller's Creek and at Coward Springs.

According to Mr. Hillier, the Diari name (Cooper's Creek) is "Kapita," and, as Oldfield Thomas points out, it is almost certainly the "Urgarta" of the Charlotte Waters blacks. It is also probably the "Thulka" of the Kukata.

Dimensions (measured in the flesh) by Mr. Hillier, who obtained the type specimen). Adult male:

Head and body	316 mm.	Hind foot	91 mm.
Tail	215 mm.	Ear	79 mm.

Dimensions of Skull.

	Type.	Coward, F. W. J.	S.A. Mus. No. 1622.
Greatest length	85	—	82
Basal length	76.5	—	74
Greatest breadth	38	35	35
Nasals, length	40	37	38
Palate, length	50	49	50
Front of C to back of M ⁴	36	36	37

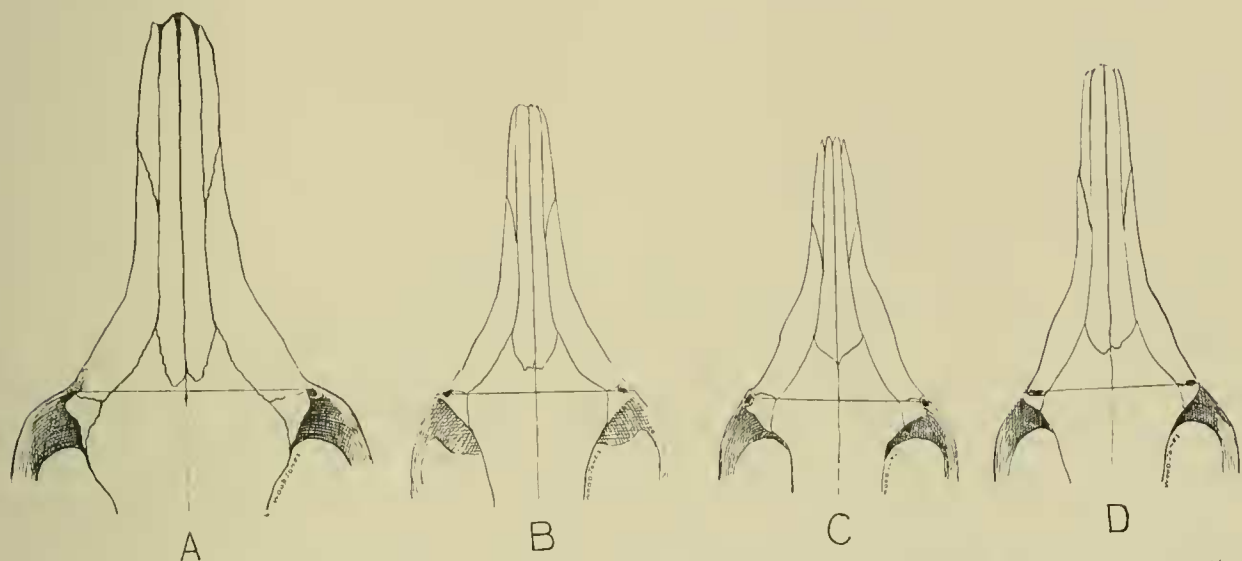


Fig. 357. The posterior extension of the nasal bones in (A) *T. lagotis*, (B) *T. sagitta*, (C) *T. minor*, (D) *T. nigripes*.

THALACOMYS MINOR Baldwin Spencer, 1897.

Peragale minor Spencer, Proc. Roy. Soc. Vict., ix, 1897 (New Ser.), p. 6, pl. ii, fig. 1-4.

Thalacomys minor Cabrera, Gen. Mamm., 1919, p. 82.

The description of the external characters of the type is as follows:

“Size considerably smaller than *T. lagotis*. Fur very long, soft and silky: composed almost entirely of under-fur. General colour fawn-grey, but darker than in *T. lagotis*. Head long, muzzle narrow. Rhinarium naked at the tip of the snout, but no backward prolongation of the naked part as in *T. lagotis*. Face grey-brown, the under-fur of the face grey basally, then fawn coloured with a dark tip, the longer hairs with a longer black tip. On the dorsal surface and sides of the body the under-fur is black basally, then fawn coloured. The longer

hairs very little longer than the under-fur, with a black tip. The hairs of the under-fur very often have a dark-brown tip. Chin and inner side of fore limbs white, the rest of the limbs and under-surface grey, the fur with a dark-grey basal part and white distal half. Hands white. Hind feet white above, hairy beneath, the hairs on the posterior two-thirds black, the anterior third white. Tail with the proximal two-thirds short haired. Along the dorsal line is a sharply marked narrow band of dark hair, increasing in length distally. At one-third of the length from the posterior end the black hairs stop abruptly, and are succeeded by a dorsal series of white hairs, forming a distinct crest, the hairs of which are proportionately shorter than in *T. lagotis*. Sides and under-surface of the tail with scanty stiff white hairs. Two small round pads at the base of the fourth and fifth toes. A few long whisker-like hairs on the posterior side of the fore limb, just above the wrist, the longest measuring about 40 mm. Mammae 8. Two or three young ones apparently produced at one time."

Of *T. minor* I have examined no specimen, and therefore rely wholly on Spencer's description. From this description the specific characters may be summarized as follows:

External Characters. Size small, head and body length being 200 mm. and upwards. General body colour as in *T. lagotis*, but somewhat darker. Manus white. Pes white above; dark in the posterior two-thirds below. Tail with the black portion longer than the white portion.

Cranial Characters. Skull small; basal length 60 mm. or more. Muscular crests and ridges very feebly marked, the skull being light and delicate in build. Posterior (molar) portion of the palate slightly rounded. Molars in slightly curved rows. The posterior end of the palate extends well behind the last molar tooth. Posterior palatine vacinities from about the central point of the middle premolar to the second molar (in figure) or to the third molar (in description). The nasal bones at their posterior ends fall short of the line joining the lacrymal foramina by about 5 mm. See figs. 355 and 357.

Dental Characters. Molars small. Considerable spaces between the lingual margins of adjacent teeth. From the point of the canine to the back of M^4 is a distance of 28 mm.

The type specimens came from the sandhills about forty miles to the north-east of Charlotte Waters, in Northern Territory. The native name is "Urpila."

Dimensions.

	Adult ♀	Adult ♀	Adult ♂	Adult ♀	Adult ♂
Head and body	215	200	245	240	270
Tail	124	118	127	152	160
Ear	71	68	87	85	92
Muzzle to eye	31.5	31	37	39	41

Dimensions of Skull.

		Adult ♂		
Greatest length	—	Nasals, length	32	
Basal length	66	Palate, length	41	
Zygomatic breadth	34	C ¹ —M ⁴	28	

THALACOMYS NIGRIPES sp. nov.

The animal is almost the same size as *T. sagitta*, and therefore smaller than *T. lagotis* and larger than *T. minor*. In general colour it is much as *T. lagotis*, being darker and more fawn coloured immediately after the moult, and lighter and more silvery immediately before it. The general body colour becomes darker upon the dorsal surface towards the hind end of the body; the tips of the long hairs of the posterior end of the body being black. At the immediate base of the tail the dark hairs give way to rather bright fawn-coloured ones over a distance of about 30 mm. The naked rhinarium is flesh coloured, grooved upon its labial portion, and extending backwards dorsally for about 20 mm. Face fawn

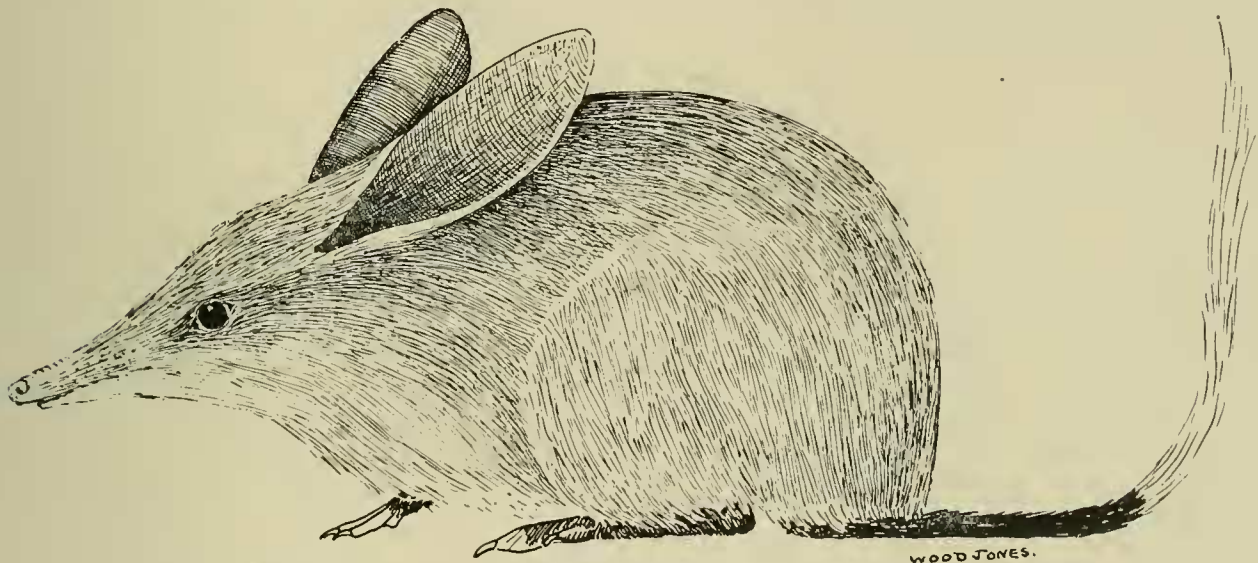


Fig. 358. *T. nigripes*. From a living male specimen. The terminal portion of the tail is represented erect merely for compactness in reproduction. About one-third natural size.

coloured. The dorsal surface of the snout, immediately behind the naked rhinarium, and as far back as the middle of the eye, is black. Fine black hairs also surround the eye. Sides of the body more fawn coloured than the dorsal surface. Chin, throat, and ventral surface pure white. The hair is directed uniformly backwards on the body, save that there is a reversed gular tract, as in the bandicoots. Fore limb dark as a whole upon its outer and dorsal aspects; white on the inner and ventral side. The proximal (humeral) portion dark grey, increasingly dark as it is traced downwards; the forearm, wrist, and dorsum of the

manus black. The black hairs stop abruptly over the metacarpus, the digits themselves being white. Just above the wrist the white of the inner aspect of the forearm trespasses on to the dorsal surface, making a prominent white patch, about 15 mm. in diameter, on the lower part of the forearm. The hind limb dark grey in the whole of its diameter in the tibial portion, save for a narrow strip of white on the dorsal (anterior) aspect. From the ankle onwards the pes is entirely black, both above and below, save for the presence of a few white hairs over a space of about 5 mm. at the base of the nail of the elongated 4th digit.

The base of the tail is fawn coloured, the basal area being succeeded by a portion, 75 mm. in length, clothed by coarse black hairs, followed by a terminal portion, 85 mm. long, clothed with long, coarse, white hairs; the terminal dorsal crest projecting another 40 mm.

A curious feature, which seems to have been overlooked in the description of other species, is that the tail ends in a prominent horny process.

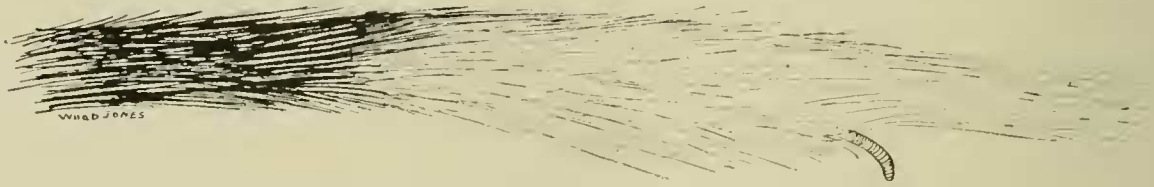


Fig. 359. Tail of *T. nigripes*, to show the terminal spur.

The ears are enormously long, the auricle consisting of two distinct portions, a basal tubular portion clothed in the whole of its circumference with fawn-coloured hairs, like those of the head and face; this portion measures about 25 mm. along its anterior aspect. The terminal leaf-like portion is almost entirely naked, extremely thin, dark-grey in colour, and shining. In the living animal the blood vessels are conspicuous and, as in some of the bandicoots, the leaf-like portion of the auricle is punctate with little circular pits about 1 mm. in diameter. The naked portion of the ear is 90 mm. in length.

The eye is black. The mystacial vibrissae are arranged in five rows; the upper and longer bristles being black, the lower and shorter ones white. The longest measures 50 mm. There are two black supraorbital vibrissae; the one is long (45 mm.) and the other only about half that length. The genal set is represented by a tuft of six vibrissae, of which some are black and some are white; the longest measures 60 mm. The ulnar carpal set is well developed, and consists of three or more strong white bristles, of which the longest is 40 mm.

Details of the pouch and nipples not known, as so far no female specimen has been secured; presumably the condition is as in the other species.

The skull is, in its general characters, much as in *T. sagitta*, but from that form it is very readily distinguished in several details. The muscular ridges are

but little marked, the skull is lightly built, and the muzzle is extremely elongated and narrow. The posterior ends of the nasal bones are separated from the line joining the two lachrymal foramina by an interval of 5 mm. The palate is greatly elongated, and extends for a distance of 3 mm. behind the last molar tooth. The posterior portion of the palate is somewhat rounded, the molars being arranged in two slightly crescentic rows. The posterior palatine vacuities are peculiarly small, and they extend from the mid point of the middle premolar only to the anterior margin of the second molar. The small size of these vacuities constitutes a very striking and very constant distinction of the species. The teeth are small, the molars in particular being considerably smaller than those of *T. sagitta*. Considerable intervals exist between the adjacent lingual margins of the individual molars.

The general specific characters of *T. nigripes* may therefore be summed up as follows:

External Characters. Size fairly large, head and body length being 320 mm. and upwards. General colour much as in *T. lagotis*. Manus black above over the carpus and metacarpus, white over the digits. Pes black, both above and below, a few white hairs on the base of the unguis phalanx of the fourth digit in some specimens. Tail with the black portion shorter than the white portion.

Cranial Characters. Skull fairly large; basal length between 70 and 80 mm., or very slightly more. Muscular crests not well developed. The posterior (molar) portion of the palate slightly rounded in outline; the molars arranged in crescentic rows. The posterior end of the palate extends well behind the last molar tooth. The posterior palatine vacuities reach from about the central point of the middle premolar to the anterior edge of the second molar. The nasal bones extend backwards so that their posterior ends fall short of the line joining the two lachrymal foramina by an interval of about 5 mm. See figs. 353, 355, 356, and 357.

Dental Characters. The molars are small. Considerable intervals exist between the lingual margins of adjacent teeth. From the front of the canine to the back of M¹ is a distance of some 35 mm., or slightly more.

A spirit preserved male specimen is in the collection of the South Australian Museum, and I have examined five others, all males. All the specimens have come from a restricted area around Ooldea Soak, and I am indebted to Mr. A. G. Bolam for all the material that I have been able to examine. The Museum specimen was sent in by Mrs. Daisy M. Bates, and all the examples have been captured by the aborigines around the Soak. It is very much to be hoped that further collecting will make it possible to examine a female specimen.

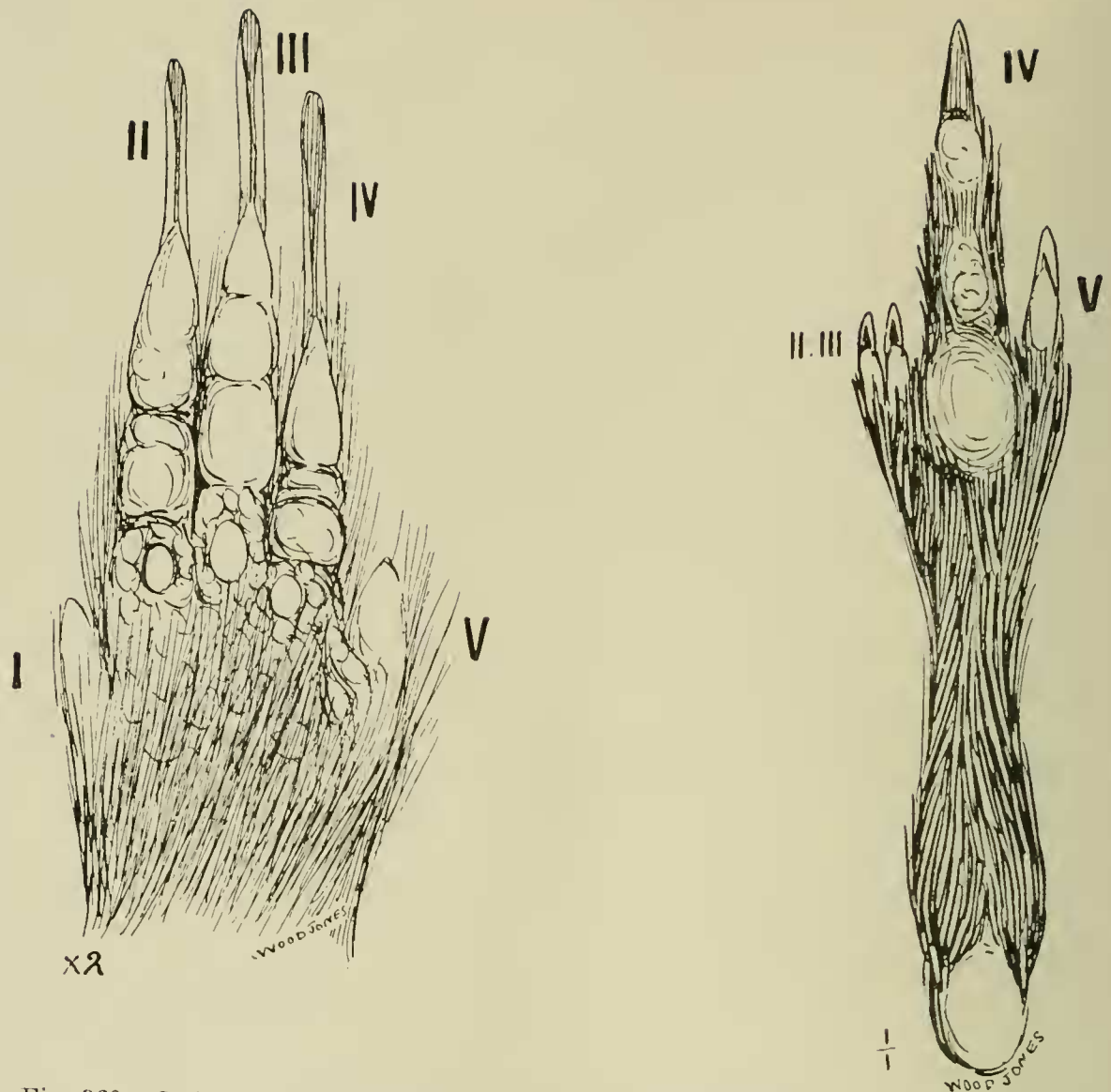


Fig. 360. Left manus (twice natural size) and pes (natural size) of *T. nigripes*.

Dimensions (in the flesh).

	Type ♂	Adult ♂ A.	Young adult ♂ B.
Head and body	390	365	320
Tail	200	220	210
Hind foot	98	96	92
Fore foot	29	29	29
Ear	105-90	110-97	103-90
Rhinarium to eye	57	54	57
Rhinarium to ear	126	125	125

Two measurements are given for the ear, the first being the dorsal and the second the ventral dimension.

Dimensions of Skull.

	Type ♂	Adult ♂ A.
Greatest length	86.5	80
Basal length	81	72.5
Greatest breadth	35	32
Nasals, length	40	33
„ breadth	8	7
Intertemporal	13	12
Palate, length	50	48
„ breadth, outside M ³	20	20
„ breadth, inside M ³	12	12
Palatine foramen	10	10
C—M ⁴	37	34.5
M ¹ —M ³	13	12

THALACOMYS LEUCURUS Oldfield Thomas, 1887.

Peragale leucura Thos., Ann. Mag. Nat. Hist. (5), xix, 1887, p. 397, and Cat. Mars. & Mon. Brit. Mus., 1888, p. 225; Lydek., Mars. & Mon., 1894, p. 134; Ogilby, Cat. Aust. Mamm., 1892, p. 23.

Thalacomys leucurus Cabrera, Gen. Mamm. Mon. & Mars., 1919, p. 82.

The full description of this species being in a standard work, the specific characters will be given here only in summary.

External Characters. Size small, head and body length of type specimen (young animal) being 142 mm. General body colour uniform pale yellowish fawn. Manus white. Pes white. Tail white.

Cranial Characters. Skull small and delicate; basal length 45 mm.

Dental Characters. Molars small.

The type specimen, a very young male, was sent by Mr. Beazley, who was at that time employed as taxidermist to the South Australian Museum, to Oldfield Thomas. The precise locality from which the specimen came is not known, and the example, so far as I can ascertain, remains unique.

Nevertheless I have definite information that a fawn-coloured rabbit bandicoot was well known to men who were in Western Australia in the comparatively early gold mining days. Sir Baldwin Spencer, who has made repeated efforts to procure further specimens, has hitherto failed to come across any trace of it. Possibly it may yet be found in the vast region of the western portion of the Centre.

Summary.

The individual characters as they are present in the different members of the genus may be tabulated as follows:

- (1) Length of head and body, 440-550 mm., *T. lagotis*.
 .. " " " 320-390 mm., *T. nigripes*.
 .. " " " 316 mm., *T. sagitta*.
 .. " " " 200-270 mm., *T. minor*.
 .. " " " 142 mm., *T. leucurus*.
- (2) Manus. White in *T. lagotis*, *sagitta*, *minor*, and *leucurus*.
 .. Black over carpus and metacarpus, white over digits, *T. nigripes*.
- (3) Pes. White above and below, *T. leucurus*.
 .. White above; posterior $\frac{1}{3}$ black below, *T. sagitta*.
 .. White above; posterior $\frac{1}{2}$ or more black below, *T. lagotis*.
 .. White above; posterior $\frac{2}{3}$ black below, *T. minor*.
 .. Black above and below, *T. nigripes*.
- (4) Tail. Black portion as long as, or longer than, white portion, *T. lagotis*,
T. minor.
 .. Black portion shorter than white portion, *T. sagitta*, *T. nigripes*.
 .. White throughout, *T. leucurus*.
- (5) Skull. Basal length, 92-105 mm., *T. lagotis*.
 .. " " " 80-81 mm., *T. nigripes*.
 .. " " " 74-76.5 mm., *T. sagitta*.
 .. " " " 66 mm., *T. minor*.
 .. " " " 45 mm., *T. leucurus*.
- (6) Palate. Extending some distance behind M^1 ; distinctly rounded in its
 posterior portion, *T. lagotis*.
 .. Extending some distance behind M^1 ; only slightly rounded in its
 posterior portion, *T. nigripes*, *T. minor*.
 .. Terminating at M^1 ; scarcely rounded in its posterior portion,
T. sagitta.
- (7) Posterior palatine vacuities from mid-point of middle premolar to mid-
 point of M^3 , *T. lagotis*.
 .. To mid-point of M^2 , *T. sagitta*, *T. minor*.
 .. To anterior border of M^2 , *T. nigripes*.
- (8) Nasals. Extending back almost to the line joining the two lachrymal
 foramina, *T. lagotis*.
 .. Falling short of such a line by an interval of some 4-5 mm.,
T. nigripes, *T. sagitta*, *T. minor*.
- (9) Distance from front of canine to back of M^1 , 42.5-45 mm., *T. lagotis*.
 .. " " " 36-37 mm., *T. sagitta*.
 .. " " " 34.5-37 mm., *T. nigripes*.
 .. " " " 28 mm., *T. minor*.